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MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

Vol. XXXIII. *November* 8, 1872. No. 1.

Professor Cayley, F.R.S., President, in the Chair.

Edward Alfred Hadley, Esq., 31 Pembroke Road, Kensington,

was balloted for and duly elected a Fellow of the Society.

List of Co-ordinates of Stars within and near the Milky Way.
By A. Marth.

(*Communicated by W. Lassell, Esq.*)

I send you the first half of the list of Co-ordinates of Stars within and near the Milky Way, which I mentioned to you in some previous letter. Will you now be good enough to communicate it to the R. A. S., and to make a friendly appeal to those fellows of the Society, who are skilled draftsmen, to devote their skill to the production of a trustworthy sketch of the Milky Way? I need not explain to you at great length the object of such an appeal, as you will understand it at once, even without calling to remembrance old Malta discussions. You know better than most observers how little many of the published drawings of nebulæ and other bodies can be depended on as faithful representations of

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the objects in the heavens, which they pretend to represent; you know how unsatisfactory and doubtful, in some cases, the evidence is which such drawings furnish; how puzzling the attempt of tracing any fair resemblance, and of accounting for the presence as well as for the absence of prominent features; how perplexing the task of discriminating between avoidable and unavoidable exaggerations. At the same time you are too well acquainted with the manifold difficulties in the way of producing and also of multiplying trustworthy sketches, not to be ready to make great allowance for defects and shortcomings, which may sometimes be due to causes and circumstances little dreamt of by the uninitiated. Now, the remedy for getting rid of, at least, a great part of the uncertainties and perplexities in the correct interpretation and appreciation of drawings is obvious. If those who furnish telescopic sketches, will only take the trouble to sketch in just the same way some kindred object in the heavens, which can easily be referred to, either without or with very little telescopic aid, it will be feasible, by comparing the sketches with the object, to determine their merits and demerits, and to estimate accordingly the degree of trustworthiness and the true value of the telescopic sketches made by the same hand, with the same care, in the same manner.

When (now nearly seven years ago), I discussed with Mr. Newall the different branches of astronomical research to which his great telescope ought to be devoted, so that science might derive the greatest benefit, I proposed to him with respect to drawings, and he readily agreed, that whoever might undertake the drawing of nebulæ or comets and planets, as seen through the great telescope, should also have to make similar drawings of, at least, a portion of the Milky Way, and also of the Moon as seen by the naked eye, or through a mere opera-glass, so that the latter drawings might serve as a fair test and index of the trustworthiness of the others. I also proposed that the drawings themselves should be made by the most skilful hands available, but that it should be the astronomer's business to furnish the correct places of all the leading points, so that the drawings should all be made to scale and without any sensible distortion. I need not remind you that the execution of this preliminary work, if it is to possess a high degree of accuracy and to be extended to a great number of objects, is of itself a very serious undertaking, which can only be accomplished in a satisfactory manner where sufficient favourable opportunities are afforded for working at it. But since the great refractor, if its power to serve the interests of science and to enlarge our knowledge of the heavens be not paralysed, was of necessity to be erected in some suitable locality in a more southerly latitude, with a pure atmosphere and plenty of clear skies, the plan was quite practicable of making these accurate measurements of details, together with a systematic general review of the heavens for nebulæ, &c., a part of the regular observing work. For it could be reconciled very well with the more pressing claims of the satellites and other urgent demands, full allowance being,

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at the same time, made for those (in the case of a private observatory, of course, very legitimate ones), which require the instrument, not as a scientific tool, but merely as a means for satisfying curiosity. From Mr. Newall's letter in the *Astronomical Register* for July of last year, you know that the conditions have changed considerably, and that consequently any such comprehensive work is now out of the question. My plans for accomplishing it were made on the supposition of a favourable locality; they were quite clear and distinct, as they were based upon considerations of very practical experience; if they aimed somewhat high, they aimed at nothing vague, or fanciful, or indefinite; they aimed only at what, under the contemplated conditions, would have been fairly feasible; they presumed no permanent assistance, except the indispensable mechanical assistance of a trusty workman, though they readily admitted any useful scientific help which might be available, and at the same time were compatible with the limited employment of the great telescope in other branches of scientific research, provided workers could be found. But then, these plans certainly assumed as an essential condition, that the observatory should be erected in some really favourable locality, Malta, Teneriffe, Madeira, any place, in other respects not too disadvantageous, where instrument and work would have a fair chance. In the absence of this essential condition the case is, of course, entirely altered. Anything like such comprehensive work, as I had in view, is now quite hopeless; all that can be aimed at is to secure for exact science what little the circumstances may permit. But how much that little will amount to, what small portion of the harvest may possibly be saved, which would be within reach if the tools were only put in the proper field, cannot at present even be conjectured, till it is decided where and when, and in what condition, the observatory will be put in working order.

However, though even at the best, for want of opportunity, accurate measurements of details may now have to be restricted to a very few selected cases, the drawings as drawings may perhaps get the advantage of being executed by very superior skill, and it is partly with a view of discovering the superior special skill amongst our amateurs or artists, that I send you in the enclosed paper the correct places of the leading stars for a map of the Galaxy, and beg you now to make a friendly appeal to those interested, to try whether they cannot manage to produce something like a fair and truthful representation of what they see, when they look up to the Milky Way in the heavens. If the task is in some respects a difficult one, it is for competent hands certainly worth attempting, and it is perhaps just the kind of task which some amateurs will like. It does not demand any previous knowledge of astronomy or astrognosy, beyond the trifling practical acquaintance with some leading group of stars, say the W. of *Cassiopeia;* all the further knowledge required may be gathered from the heavens themselves with the help of a star-map, con-

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structed according to the list. But the task demands special technical qualifications, the possession of which puts it into the power of any one, who will take the necessary pains, to render a substantial service to astronomical science, by supplying a long-felt want, which up to the present time has remained unsatisfied.

As regards the actual state of our knowledge of the Milky Way, I need only refer to Argelander's remarks in his old 'Appeal to Amateurs ('Aufforderung an Freunde der Astronomie,' &c., in Schumacher's *Jahrbuch für* 1844, pp. 122–254), where the subject is treated pp. 180–185, of which, should you wish it, I will send you a translation, if it does not already exist somewhere, or if your daughters do not prefer to furnish one. Since the time of Argelander's appeal Sir John Herschel's drawing of the southern portion of the Milky Way has been published in his *Cape Observations;* and Heis in Munster, and Schmidt in Athens, have been engaged in preparing sketches of the portions visible from their stations. Herschel's drawing, however, can, for obvious reasons, only be looked upon as a highly valuable first attempt. Heis's long-expected new star-maps are not yet published, but from a remark in the report to the meeting of the Astron. Gesellschaft held last year at Stuttgart, it would seem, that Heis himself is not quite satisfied with the technical representation of the Milky Way, which they contain (v. *Vierteljahrs-schrift der Astron. Gesellschaft*, vol. vi. p. 267). Whether anything more is publicly known about Schmidt's drawing than what is mentioned in the report of the meeting held in 1867 at Bonn (v. same publication, vol. ii., p. 211), I am unable to say. But suppose even that Schmidt's chart is to be published before long, it will obviously be of advantage to science to possess several independent representations, made by different hands, under different as well as under similar conditions, and I should recommend an appeal to qualified draftsmen for such representations, even if they were not intended to serve at the same time the special purpose which I mentioned first.

It seems unnecessary to offer here any suggestions respecting the technical execution of the drawings. Of course, an object so complicated as the zone of the Galaxy, comprehending such manifold details and such great varieties of light, from very bright sharp points down to the faintest nebulous patches, cannot be represented on paper without a considerable amount of conventional exaggeration; and the most effective or the most practical manner of doing so is not likely to be found except after repeated trials and critical discussions. The only question which it is desirable to settle beforehand is the question of scale, and accordingly, with a view to promote agreement and at the same time, perhaps, to facilitate the insertion of the stars in their correct places, the co-ordinates given in the list are expressed in inches and hundredths, at the rate of one inch to five degrees, which, for the present purpose, will probably be found the most suitable and convenient scale. The whole map of the galactic zone will then have

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a length of six feet, consisting of, say, six sections, each twelve inches long and eight inches broad, the central six inches of which should show nothing but the representation of what is seen in the heavens, while the network of the map, and any letters, names of constellations, marks of reference, &c., should be confined to the two outside inches, where they do not encroach upon the drawing. The list, the first half of which I send you, furnishes the rectangular co-ordinates x and y (x being reckoned from right to left, y downwards), of all the leading stars down to the magnitude 5–6 of Argelander's *Uranometria Nova*, in the central zone of the map, or between the galactic polar distances 75° and 105°, and also of a considerable number outside these limits. The fainter stars visible to the naked eye are then to be inserted by estimation, just as in drawings of nebulæ it is the case with stars too faint for being measured micrometrically. I am quite willing to furnish in a supplementary list the co-ordinates for a number of additional stars along the borders of the Milky Way, or in other critical positions, but for the purpose I must first learn which they are.

The magnitudes adopted in the list are chiefly those of the catalogue of the *Uranometria*, the old notation for intermediate magnitudes being, for convenience, supplanted by the decimals ·3 and ·7, so that $4^{m}·3$ must be understood merely to mean a faint 4^{m}, and $4^{m}·7$ a bright 5^{m}. The pole of the system of galactic co-ordinates, I have assumed to be in R. A. 190°, and Decl. 60° for the equinox of 1880. The galactic longitudes and polar distances have then been computed independently for every star in the list, so that the last figures of the co-ordinates there given can be relied on. You may, perhaps, think, that I have taken more pains in preparing this preliminary work than the subject deserves. Though an excuse will scarcely be needed, it may be just as well to explain, that the satisfactory settlement of the question concerning the appearance of the Milky Way is merely part of the auxiliary and preparatory work in connexion with the systematic general review of the heavens, to which I alluded before, and which I should have undertaken with a fair prospect of practical success (so far as the latitude of the observatory might allow), if the opportunity had been granted. Our Malta experience has sufficiently proved how much and extended critical re-examination of the heavens is wanted, but it has also shown that, even under favourable circumstances, a series of years will be required for accomplishing it in a satisfactory manner.

The second half of the list of co-ordinates, comprising the southern portion of the Milky Way, is at your service whenever you like, as I have it all ready, save some possible deficiencies occasioned by the want of a trustworthy map or catalogue, from which the correct magnitudes of the lucid stars not visible in our latitudes might be taken. If Behrmann's estimations were known, any uncertainty in selecting the stars required would probably be removed; but, so far as I am aware, they are not yet published.

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Such an uncritical compilation, as the B. A. Catalogue, is, of course, too precarious a guide and cannot be depended on, though, from the way in which it has been compiled, it may be safely presumed that it will be found considerably less incomplete in the regions south of the tropic of Capricorn (the northern limit of Lacaille's Catalogue), than in those north of it.

Co-ordinates of Stars within and near the Milky Way.

x in.	y in.	Mag. in.	Star.	B.A.C.
0·31	3·75	5	4 Aquilæ	6379
·57	1·47	5	71 Ophiuchi	6142
·59	6·22	5·3	*e* Aquilæ	6679
·66	2·55	cl.	viii. 72	(6280)
·72	1·40	3·3	72 Ophiuchi	6143
0·96	3·96	3·7	θ Serpentis	6460
1·01	6·34	4·3	ι Aquilæ	6715
·04	5·74	5	ν ,,	6653
·10	7·24	5	..	6815
·50	5·41	3·3	δ ,,	6646
·60	4·41	5·3	19 ,,	6552
1·77	6·82	var. 3·5–4·7	η ,,	6811
2·24	5·77	5	σ ,,	6729
·42	3·82	5	18 ,,	6543
·45	5·35	4·7	μ ,,	6701
·67	3·24	5	11 ,,	6483
·84	6·35	4	β ,,	6833
·86	3·48	3	ζ ,,	6528
2·94	3·12	4	ε ,,	6487
3·00	4·50	5·3	*b* ,,	6644
·14	0·78	4	109 Herculis	6251
·14	5·90	1·3	α Aquilæ	6802
·17	6·09	5	ξ ,,	6825
·19	2·29	4·3	111 Herculis	6397
·31	2·84	5	..	wanting
·32	5·53	3	γ Aquilæ	6772
·59	2·01	4	110 Herculis	6387
·73	5·86	5·3	φ Aquilæ	6838
3·89	2·20	5	112 Herculis	6438
4·16	2·19	4·3	113 ,,	6453
·36	4·59	4·3	β Sagittæ	6744
·37	3·71	5	4 Vulpec.	6654
·43	3·18	4·7	1 ,,	6589
·43	4·49	4·3	α Sagittæ	6739
·59	4·08	5	9 Vulpec.	6709

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x	*y*	Mag.	Star.	B.A.C.
in.	in.	in.		
4·70	4·70	4	β Sagittæ	6783
·70	1·47	5	..	wanting
·75	7·37	4	ε Delphini	7088
·84	4·73	5	ζ Sagittæ	6794
4·86	6·17	5	ξ Aquilæ	6952
5·16	5·07	3·7	γ Sagittæ	6858
·29	3·35	4·3	6 Vulpec.	6674
·38	7·05	4·7	ζ Delphini	7107
·41	5·27	5·3	κ Sagittæ	6901
·43	2·95	5·3	3 Vulpec.	6637
·43	7·15	3·3	β Delphini	7121
·48	4·43	5	12 Vulpec.	6810
·69	7·31	4	δ Delphini	7173
·72	7·07	3·7	α ,,	7149
·79	4·36	4·7	13 Vulpec.	6827
·87	1·10	5·3	ν Lyræ	6427
·90	3·08	3	β Cygni	6690
·96	7·30	3·3	γ Delphini	7200
5·99	1·51	5·3	λ Lyræ	6497
6·02	1·03	var. 3·5–4·5	β Lyræ	6429
·04	2·66	5	2 Cygni	6648
·05	4·92	5·3	17 Vulpec.	6912
·07	1·43	3·3	γ Lyræ	6491
·15	4·59	5	16 Vulpec.	6883
·18	3·78	3 ?	Nova of 1670	
·20	1·76	5·3	17 Lyræ	65
·47	3·18	5	φ Cygni	6740
·54	6·38	5	29 Vulpec.	7140
·59	4·23	5	15 ,,	6879
·60	5·00	5	16 H ,,	6966
·73	0·48	4·3	ζ Lyræ	6392
·76	0·89	4·3	δ ,,	6466
·83	0·10	1	α ,,	6355
·86	1·45	5	ι ,,	6556
6·97	4·76	5	23 Vulpec.	6973
7·01	6·02	5·3	28 ,,	7143
·04	2·46	4·7	8 Cygni	6698
·11	0·31 }	4	5 ϵ^2 Lyræ	6391
·12	0·30 }		4 ϵ^1 ,,	6390
·20	3·29	var. 4–13	χ Cygni	wanting
·24	3·05	5·3	17 ,,	6784
·26	2·07	5	4 ,,	6667
·39	1·56	4·3	θ Lyræ	6599
·53	1·37	4·3	η ,,	6581

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x in.	y in.	Mag. in.	Star.	B.A.C.
7·69	3·24	4·3	η Cygni	6851
·74	4·92	4·3	41 ,,	7067
·81	2·59	5·3	15 ,,	6771
·83	4·45	5	39 ,,	7029
7·87	6·11	5	31 Vulpec.	7246
8·09	6·06	5·3	32 ,,	7256
·20	4·00	5·3	35 Cygni	6998
·24	5·42	4·3	52 ,,	7194
·25	2·85	5·3	22 ,,	6849
·28	3·48	5	28 b^2 ,,	6937
·39	3·65	5	29 b^3 ,,	6967
·52	4·55	5·3	47 ,,	7103
·67	3·61	var. 3 < 6	P ,,	6990
·75	5·01	2·7	ε ,,	7204
·84	4·99	var. 5–6	τ ,,	
8·97	6·36	3	ζ ,,	7368
9·13	3·49	2·7	γ ,,	7022
·17	1·80	3	δ ,,	6779
·17	4·72	4·7	λ ,,	7213
·79	7·50	4·3	μ ,,	7568
·79	5·84	4·3	υ ,,	7399
·93	1·05	4·7	θ ,,	6734
·99	4·98	5·3	61 ,,	7336
9·99	2·46	4	31 o^1 ,,	6965
10·10	0·72	4	ι ,,	6697
·12	4·38	4	ν ,,	7277
·14	5·30	4	τ ,,	7385
·19	2·40	4·3	32 o^2 ,,	6983
·35	3·41	1·7	α ,,	7171
·37	3·80	5·3	56 ,,	7241
·41	5·18	4·3	σ ,,	7398
·50	3·84	5·3	57 ,,	7253
·63	1·35	5	χ ,,	6856
·65	1·16	5·3	*d* ,,	6824
·68	2·64	5	45 ω^1 ,,	7085
·72	4·21	4	ξ ,,	7333
10·79	5·76	5	72 ,,	7505
11·03	6·02	5·3	79 ,,	7566
·07	4·55	5	A ,,	7402
·11	5·53	5	74 ,,	7521
·11	3·58	5·3	f^1 ,,	7301
·28	7·48	4	π Pegasi	7731
·29	3·73	5·3	f^2 Cygni	7345
·38	5·56	5·3	..	7565

x in.	y in.	Mag. in.	Star.	B.A.C.
11·50	0·78	5·3	23 Cygni	6847
·63	1·34	4·3	33 ..	6976
·70	4·67	4·3	ξ ..	7503
·70	4·42	5	ν ..	7480
·85	3·76	5·3	..	7411
11·93	4·03	5	..	wanting
12·02	6·87	4·7	1 Lacertæ	7777
·02	4·20	cl.	Mess. 39	(7496)
·17	6·49	5	1 H Lacertæ	7765
·33	1·91	4·7	6 H Cephei	7215
·50	4·37	4·3	π^2 Cygni	7598
·62	3·98	4·7	π^1 ,,	7560
·96	0·94	4	θ Cephei	7098
·97	7·10	5	10 Lacertæ	7901
12·99	1·38	3·7	η Cephei	7220
13·08	6·23	5	6 Lacertæ	7850
·13	5·47	4·7	2 ..	7800
·31	4·57	5·3	..	7746
·51	5·42	5	5 ..	7845
·51	6·20	5	11 ..	7906
·54	5·03	5	4 ..	7820
·60	2·82	var. 4–5	μ Cephei	7582
·65	1·84	2·7	α ..	7416
·79	4·54	4·3	3 Lacertæ	7815
·81	5·00	4	7 ..	7855
·92	2·22	5·3	9 Cephei	7542
13·93	2·48	5	ν ,,	7595
14·06	6·89	3·7	ο Andr.	8023
·08	3·59	4·7	ε Cephei	7778
·10	4·86	5	9 Lacertæ	7888
·11	3·33	3·7	ζ Cephei	7749
·55	3·54	var. 3·7–4·9	δ ,,	7848
·69	2·17	4·7	ξ ,,	7700
·74	5·49	5·3	3 Andr.	8036
	0·83	3	β Cephei	7493
14·95	5·71	5	7 Andr.	8082
15·08	5·84	5·3	8 ,,	8114
·20	0·87	5	11 Cephei	7588
·24	2·74	5·3	30 ,,	7902
·43	7·15	4	ι Andr.	8229
·51	3·78	5·3	1 Cass.	8054
·56	6·96	4	κ Andr.	8237
·58	6·52	4	λ ,,	8224
·69	0·97	4·7	24 Cephei	7758

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x in.	y in.	Mag. in.	Star.	B.A.C.
15·69	2·38	4·3	ι Cephei	7967
15·87	6·61	5	ψ Andr.	8261
16·02	4·14	5	1 H Cass.	8188
·16	0·95	5	31 Cephei	7896
·45	4·23	5	τ Cass.	8268
·48	5·72	var. 4·8 < 1·2	R ,,	
·59	4·50	5	ϱ ,,	8310
·66	4·86	5	σ ,,	8330
·70	6·83	5·3	22 Andr.	16
·72	0·82	4·7	π Cephei	8074
16·88	2·45	6	41 H ,,	8273
17·03	4·24	2·3	β Cass.	7
·23	0·51	3·3	γ Cephei	8238
·51	3·28	3·3	Nova of 1572	
·56	5·22	5	λ Cass.	121
·68	3·54	4·3	ϰ ,,	126
·71	5·35	4	ζ ,,	153
·82	4·82	var. 2·2–2·8	α ,,	169
·85	7·88	neb.	Neb. Andr.	184
17·93	6·47	5	ο Cass.	198
18·05	4·56	3·7	η ,,	218
·07	5·94	5	ν ,,	219
·13	7·91	4·3	ν Andr.	227
·24	3·98	2	γ Cass.	253
·59	5·11	6	μ ,,	314
·69	5·06	4·3	θ ,,	339
·71	2·45	5	ψ ,,	412
·79	6·65	4·3	φ Andr.	330
·80	7·31	5	41 ,,	318
·86	4·47	5	φ Cass.	391
·87	0·54	5·3	47 ,,	597
18·96	4·01	3	δ ,,	416
19·15	1·47	4	50 ,,	600
·22	1·77	4·7	A ,,	595
·24	2·22	5	ω ,,	568
·29	6·93	5	ξ Andr.	404
·48	3·20	3·3	ε Cass.	564
·48	6·93	5	ω Andr.	432
·72	6·23	3·7	υ Persei	487
·81	5·79	4	φ ,,	522
·89	0·71	4·7	37 H Cass.	955
·92	2·26	4	ι ,,	744
·94	7·05	5·3	χ Andr.	492
19·98	7·65	4·3	υ ,,	480

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x in.	*y* in.	Mag. in.	Star.	B.A.C.
20·17	4·91	5·3	4 Persei	614
·45	4·26	cl. vi.	33 *h* ..	(700)
·52	4·22	cl. vi.	34 *h* (χ) *Persei*	(718)
·74	0·86	4·3	9 H Camelop.	1137
·80	0·93	5	..	wanting
·95	7·22	2·3	γ Andr.	628
20·99	2·10	5	1 H Camelop.	1001
21·12	5·47	5	65 Andr.	735
·14	6·09	5·3	*c* ,,	706
·16	6·75	5·3	*b* ,,	676
·35	4·14	3·7	ϰ Persei	863
·50	1·44	5	7 H Camelop.	1144
·63	3·80	5	*k* Persei	948
·73	4·65	4	τ ,,	885
·76	5·43	4	θ ,,	827
·82	2·92	4·7	2 H Camelop.	1058
·94	4·37	3	γ Persei	947
·95	4·63	5	..	918
21·95	3·09	5	3 H Camelop.	1062
22·24	1·97	cl.	vii. 47	wanting
·26	6·62	cl.	Mess. 34	(822)
·31	0·69	4	9 Camelop.	1474
·35	3·65	5	4 H ,,	1065
·43	4·98	4	ι Persei	962
·50	4·63	5	..	995
·50	7·08	5	12 ,,	821
·64	4·71 }	5	29 ,,	1007
·67	4·72 }		31 ,,	1011
·83	4·67	2	α ,,	1043
22·95	5·78	4·3	ϰ ,,	967
23·01	4·63	5	34 ,,	1066
·13	6·88	5	π ,,	912
·22	4·86	5	σ ,,	1071
·32	6·47	var. 2·3–4·0	β ,,	963
·35	4·71	5	ψ ,,	1099
·43	1·22	4	10 Camelop.	1536
·44	6·90	var. 3·4–4·0	ϱ Persei	953
·48	5·81	5	*l* ,,	1026
·56	3·91	5·3	A ,,	1214
·57	6·64	5	ω ,,	981
·57	4·65	3	δ ,,	1129
·62	3·07	5	12 H Camelop.	1293
·71	1·33	5	11 ,,	1546
23·84	3·76	4·3	λ Persei	1254

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x in	y in.	Mag. in.	Star.	B.A.C.
24·12	3·51	5	*b* Persei	1301
·25	4·10	4	*c* ,,	1266
·28	5·42	4	ν ,,	1139
·30	3·86	4·3	μ ,,	1287
·41	2·16	5	7 Camelop.	1504
·73	3·98	5	*d* Persei	1323
·93	2·19	5	9 Aurigæ	1554
24·98	5·51	3·3	ε Persei	1219
25·28	6·84	5	ο ,,	1132
·33	0·56	4·3	δ Aurigæ	1885
·40	5·01	5	*f* Persei	1291
·57	7·05	4	ο ,,	1138
·57	6·12	4	ξ ,,	1228
·86	4·31	5	*e* ,,	1414
25·95	6·84	3	ζ ,,	1207
26·04	2·59	1	α Aurigæ	1613
·08	3·27	var. 3·5–4·5	ε ,,	1540
·52	3·59	4	ζ ,,	1541
·59	3·45	3·7	η ,,	1558
·80	8·20	3	η Tauri	1166
·87	1·32	5	π Aurigæ	1897
26·96	4·44	5	2 ,,	1492
27·04	1·43	2	β ,,	1895
·05	3·21	5	λ ,,	1631
·44	6·71	5·3	φ Tauri	1326
·62	4·74	3	ι Aurigæ	1520
·86	2·34	5	τ ,,	1830
27·91	2·27	4	ν ,,	1845
28·08	3·49	5·3	19 ,,	1636
·13	4·03	5	14 ,,	1627
·17	4·20	5·3	14 ,,	1614
·17	3·58	5·3	φ ,,	1690
·22	2·47	5	υ ,,	1844
·32	7·13	4·7	υ Tauri	1367
·37	7·23	4·7	ϰ ,,	1362
·41	2·19	3	θ Aurigæ	1900
·67	3·66	5	χ ,,	1723
·73	6·62	4·3	τ Tauri	1449
28·96	7·53	3·7	ε ,,	1376
29·11	4·29	2	β ,,	1681
·62	5·97	5	ι ,,	1551
·62	7·61	1	α ,,	1420
·72	6·74	5·3	*i* ,,	1493
29·93	3·41	5	136 Tauri	1863

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x in.	*y* in.	in. Mag.	Star.	B.A.C.
30·01	0·57	3·3	θ Gemin.	2237
·09	2·38	4·7	κ Aurigæ	2001
·23	6·16	5·3	*m* Tauri	1568
·32	3·40	5·3	139 „	1896
·34	3·90	5·3	132 „	1837
·63	4·71	3·3	ζ „	1767
·68	6·65	5	11 Orionis	1557
·80	6·43	5·3	15 „	1591
·89	3·12	cl.	Mess. 35	(1962)
30·92	3·44	5	1 Gemin.	1938
31·20	4·14	4·7	54 χ^1 Orionis	1876
·31	3·09	3·3	η Gemin.	2002
·46	3·77	5	62 χ^2 Orionis	1939
·48	1·68	3·3	ε Gemin.	2194
·49	2·77	3	μ „	2047
31·50	5·07	5	126 Tauri	1792
32·03	2·75	4·7	ν Gemin.	2090
·37	5·14	5·3	134 Tauri	1846
·46	6·03	3·3	λ Orionis	1749
·47	4·17	4·7	ν „	1958
·53	6·09	5	ϕ^1 „	1748
·62	6·03	4·7	ϕ^2 „	1766
·67	4·05	5	ξ „	1990
·75	1·26	var. 3·7–4·5	ζ Gemin.	2305
·81	6·83	2	γ Orionis	1687
·91	2·75	2·3	γ Gemin.	2163
32·98	0·46	3·3	δ „	2410
33·12	4·06	5·3	*k* Orionis	2017
·22	4·92	4·7	μ „	1928
·42	5·45	var.	α „	1883
·57	6·47	5	ω „	1782
·61	2·79	5	30 Gemin.	2199
·62	3·48	5	..	wanting
·69	2·79	3·7	ξ Gemin.	2206
·80	1·03	3·7	λ „	2398
33·87	2·34	5	*e* „	2255
34·11	3·27	var. 4·9–5·6	S Monoc.	2185
·17	7·24	var. 2·2–2·7	δ Orionis	1730
·35	7·77	3·3	η „	1730
·38	3·84	4·7	13 Monoc.	1684
·44	7·15	2	ε Orionis	1765
·60	3·15	5	17 Monoc.	2216
·62	4·50	4·7	8 „	2059
·69	7·02	2	ζ Orionis	1794

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x in	y in.	Mag. in.	Star.	B.A.C.
34·76	7·18	3·7	σ Orionis	1780
·79	4·11	5	12 Monoc.	2123
34·90	0·93	5	6 Can. Min.	2473
35·08	7·54	4·7	c Orionis	1759
·18	7·60	4	θ′ „	1758
·28	7·65	3	ι „	1762
·30	1·37	5·3	ε Can. Min.	2451
·38	6·30	5·3	..	wanting
·42	1·29	5	γ Can. Min.	2468
·52	1·39	3	β „	2462
·60	3·67	5	18 Monoc.	2222
35·83	4·74	5·3	..	wanting

The Rich Nebular Regions in Virgo and Coma Berenices.

By Richard A. Proctor, B.A. (Cambridge).

In the maps which illustrate my papers on the distribution of the nebulæ, in Vol. xxviii. of the *Monthly Notices*, the nebulæ are not shown in their true places, but are simply arranged according to their numerical distribution in spaces having given limits in R.A. and Dec. While engaged in the construction of these maps, it occurred to me that considerable light might perhaps be thrown on questions relating to stars and nebulæ, if maps were constructed on an adequate scale, showing the stars down to telescopic orders of magnitude, and all the known nebulæ, properly placed. It is clear that to construct such maps for the whole heavens would be a work involving several months of labour, and it is seldom that I can find even a few hours of leisure for such work. I have, however, begun to prepare maps of the most interesting nebular regions, and I now present two such maps—one showing the rich nebular region in the wing of *Virgo*, the other the rich region in *Coma Berenices*. The former map contains upwards of 250 nebulæ, the latter containing some 80; and in both maps all the stars in Argelander's series of charts (corrected for precession, so as to accord with the date of Sir John Herschel's Catalogue of Nebulæ) have been included. Thus the maps show all the stars down to Herschel's 11th magnitude, or to the magnitude intermediate to Argelander's 9th and 10th.*

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* I say down to these magnitudes; but there are many who prefer to speak of the fainter orders of stars as belonging to the higher orders of magnitude. It would be well that some definite rule should be adopted in this matter. My own sole reason for speaking of the brighter orders as the higher orders is that I find that mode of speaking to be more in accordance with ordinary ideas on the subject than that which calls a very faint star a star of a high order of magnitude. Authority is divided on the subject, some astronomers adopting one mode of speaking, while others use the other. Hence some confusion is apt to result.